

### **REMARKS**

Claims in the case are 23-28 and 30-46. Claim 29 has been cancelled without prejudice herein. Claims 1-22 were cancelled previously in a Preliminary Amendment dated 25 September 2003.

The drawings stand objected to for not showing every feature or element of the invention specified in the claims. This objection is respectfully traversed with regard to the replacement drawing figure 1 and added drawing figures 1a-1h included herewith (see the appendix), the amendments herein and the following remarks.

Included herewith is a replacement drawing figure 1 and added drawing figures 1a-1h which show the following elements of Applicants' claimed apparatus.

<u>Element</u>	<u>Reference Character(s)</u>
- Two shafts ... meshing with one another (see Figure 1h)	30 and 33
- Double lead feed elements in housing part 1	18
- Double lead feeding elements in the degassing zone	19
- Double lead kneading elements between feed elements of the shaft	20
- Triple lead feed elements in the pressure build-up zone	21
- Exhausting device	36
- Conduits associated with exhausting device 36	39, 42 and 45
- Cooling device	48
- Inlet conduits associated with cooling device 48	16
- Outlet conduits associated with cooling device 48	17
- Admixing charging device	22

The specification has been amended herein to include the above recited reference characters.

The replacement and added drawings and the associated amendments to the specification are not deemed to introduce new matter into the specification, as they

serve to show or otherwise better represent that which is already admitted to in the written specification. Acceptance and entry of the replacement and added drawings and the associated amendments to the specification is respectfully requested.

In light of the replacement and added drawings provided herewith, the amendments to the specification and the preceding remarks, the objection to the drawings is deemed to have been overcome. Reconsideration and withdrawal of the objection to the drawings is respectfully requested.

Claims 23-33 stand rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent No. 4,534,652 (**Stade**) in view of United States Patent No. 4,474,473 (**Higuchi et al**). This rejection is respectfully traversed in light of the following remarks.

Stade discloses a multi-shafted, continuous mixing and kneading apparatus that includes mutually engaging worm elements that rotate in the same sense (abstract). Stade's apparatus is disclosed as including: an inlet opening (16); what effectively is a high pressure zone (1) that is down-stream from inlet opening (16); and what effectively is a degassing zone (2) that is further down-stream from high pressure zone (1). See the abstract; Figure 1; and column 1, line 46 through column 2, line 2 of Stade. The degassing zone (2) of Stade's apparatus is also disclosed as including a further fill opening (17) and an out-gassing outlet opening (18), and an exit position (15) (Figure 1; and column 4, lines 3-40).

It is important to note that due to the configuration of the worm elements of Stade's apparatus, the flow of material therethrough is right to left when viewing Figure 1. As such, the degassing zone (2) of Stade's apparatus is always further downstream from the high pressure zone (1).

The flow or advance of material through Applicants' double-shaft extruder is left to right when viewing the drawing Figure. With the double-shaft extruder of Applicants' claims, the pressure build-up zone (e.g., housing parts 12, 13 and 14) is always further down stream from the degassing zone (e.g., housing parts 4, 6, and 8). Stade does not disclose teach or suggest a double-shaft extruder according to Applicants' claims which includes a degassing zone down-stream from an inlet, and a pressure build-up zone that is further down-stream from the degassing zone.

Applicants wish to further point out the length-to-diameter ratio of the double-shaft extruder of their claimed apparatus is constant over the length of the extruder. See Figure 1 of Applicants' specification. The diameter of zone 1 of Stade's apparatus is smaller than that of the diameter of zone 2 thereof. As such, the length-to-diameter ratio of Stade's apparatus is not constant over the length of the apparatus. See Figure 1; column 2, lines 25-29; and column 3, lines 59-67 of Stade. Higuchi et al discloses a twin-screw co-rotating extruder that is used to prepare a pigment dispersion by means of continuous pigment flushing within the extruder (abstract). The extruder of Higuchi et al is disclosed as including the following sequence of sections (up-stream to down-stream): a feed section (A); a flushing section (B); a dehydrating section (C); an optional after-treating section (D); and a nozzle or outlet section (E). See the abstract; Figure 1; and column 5, lines 13-26 of Higuchi et al. The extruder used by Higuchi et al is disclosed as having an L/D ratio of at least 25 (e.g., 40) (column 7, lines 3-7; and column 8, line 67). However, Higuchi et al do not disclose, teach or suggest a double-shaft extruder according to Applicants' claims which includes a degassing zone that is down-stream from an inlet, and a pressure build-up zone that is further down-stream from the degassing zone.

Stade and Higuchi et al, either alone or in combination do not disclose, teach or suggest the apparatus of Applicants' claims. In particular, Stade and Higuchi et al, either alone or in combination do not disclose, teach or suggest a double-shaft extruder according to Applicants' claims which includes a degassing zone that is down-stream from an inlet, and a pressure build-up zone that is further down-stream from the degassing zone.

In light of the preceding remarks, Applicants' claims are deemed to be unobvious and patentable over Stade in view of Higuchi et al. Reconsideration and withdrawal of this rejection is respectfully requested.

Applicants note with appreciation the allowance of Claim 34-46 in the Office Action of 18 March 2003.

In light of the amendments herein and the preceding remarks, Applicants' presently pending claims are deemed to define an invention that is unanticipated, unobvious and hence, patentable. Reconsideration of the rejections and allowance of all of the presently pending claims is respectfully requested.

Respectfully submitted,

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**APPENDIX**

Replacement Drawing Figure 1  
and  
Added Drawing Figures 1a-1h.